

Revisional Notes of the Palaearctic Species of the Genus *Atrachea* Warren (Lepidoptera, Noctuidae, Amphipyrinae), with Descriptions of Two New Species from China

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Abstract The East Palaearctic genus *Atrachea* Warren, 1911 are revised. Two generic names *Trichosternum* Draudt, 1950, **syn. n.** and *Zutrugum* Nye, 1975 (replacement name for *Trichosternum*), **syn. n.** are synonymized with *Atrachea*. Three new combinations and new synonymies for two specific names are proposed: *Atrachea prasinatra* (Draudt, 1950), **comb. n.**, *Atrachea leucochlora* (Boursin, 1970), **comb. n.**, *Atrachea munda* (Leech, 1900) = *Valeriodes muscosula* Draudt, 1950, **syn. n.**; *A. viridinigra* (Hreblay et Ronkay, 1997), **comb. n.**; *Atrachea ochrotica* (Hampson, 1910) = *Trichosternum likianga* Draudt, 1950, **syn. n.** Two new species, *A. draudti* **sp. n.** and *A. chlorofasciata* **sp. n.** from China are described. A list of Palaearctic species of *Atrachea* is presented.

Key words Lepidoptera, Noctuidae, taxonomy, revision, new species, China, *Atrachea*

INTRODUCTION

The genus *Atrachea* Warren, 1911 (type species: *Spaelotis nitens* Butler, 1878, by original designation) is a part of complex group of genera of the tribe Apameini. Originally Warren (1911) listed three Palaearctic species, two of which, *Atrachea vulgaris* (Butler, 1886) [*Polydesma*] and *Atrachea sordida* (Butler 1881) [*Glottula*] were separated to distinct genera by Sugi (1958, 1982) as representing two distinct genera, *Bambusiphila* Sugi, 1958 and *Pyrrhivalva* Sugi, 1982, respectively. Later, Sugi (1963, 1982) described *Atrachea myakensis* Sugi, 1963 from southern islands of Japan, the Izu Isls. with subspecies, *A. miyakensis*, ssp. *contaminata* Sugi, 1982 from Kyushu and Shikoku. Varga (1982) included *Ammoconia parvispina* Tschetverikov, 1904 as a member of *Atrachea*. Kononenko (1986) in a review of the Far Eastern *Atrachea* transferred three species: *Hadena jankowskii* Oberthür, 1879, *Euplexia japonica* Leech, 1889 and *Jaspidea jankowskii* Alpheraky, 1897, with proposal of a replacement name *Atrachea alpherakyi* Kononenko, 1986 for the last taxon. Two species, *Trachea ochrotica* Hampson, 1910, described from Taiwan and *Lophotyna argillacea* Draudt, 1950 from China

were transferred to the genus by Poole (1989). Recently four more species have been transferred to *Atrachea*: *Eurois munda* Leech, 1900 and *Antipaleria taiwana* Chang, 1991 by Hreblay and Ronkay (1997), *Trachea atrovirens* Moore, 1867 and *Hadena viridula* Staudinger, 1895 by Hreblay, et al. (1998).

In the present paper, the genus *Atrachea* is revised, based on the examination of the Chinese collection of Noctuidae in the Zoologischer Forschungsinstitut und Museum Alexander Koenig (ZFMK, Bonn). In the result of the present study, two generic names, *Trichosternum* Draudt, 1950, **syn. n.** and *Zutrugum* Nye, 1975 (replacement name for *Trichosternum*), **syn. n.** are synonymized with *Atrachea*. Three more species are transferred to the genus *Atrachea* and new synonymies for two specific names are established: *Atrachea prasinatra* (Draudt, 1950) [*Trachea*], **comb. n.**; *Atrachea leucochlora* (Boursin, 1970), **comb. n.** [*Trachea*]; *Atrachea munda* (Leech, 1900) [*Eurois*] = *Valeriodes muscosa* Draudt, 1950, **syn. n.**; *Atrachea ochrotica* (Hampson, 1910) = *Trichosternum likianga* Draudt, 1950, **syn. n.**; *A. viridinigra* (Hreblay et Ronkay, 1997) [*Polymixis*], **comb. n.** Two new species, *A. draudti* **sp. n.** and *A. chlorofasciata* **sp. n.** from China are described as a new for science. Four species, *Atrachea parvispina* Tschetverikov, 1904 [*Ammonoconia*], *A. taiwana* (Chang, 1991) [*Antivaleria*], *A. argyllacea* (Draudt, 1950) [*Lophotyna*], and *A. atrovirens* Moore, 1867 [*Trachea*] are excluded from the genus *Atrachea*. Types of new species and designated lectotypes are preserved in ZFMK (Bonn).

SYSTEMATIC REVIEW

Atrachea Warren, 1911

Type species: *Spaelotis nitens* Butler, 1878, by original designation.

Trichosternum Draudt, 1950, **syn. n.** Type species: *Trichosternum likianga* Draudt, 1950: 80; pl. V: 20, by monotypy of *Trichosternum* Draudt, 1950, nec Wollaston, 1816 [Coleoptera].

Zutrugum Nye, 1975 (repl. name for *Trichosternum* Draudt, 1950), **syn. n.** Type species: *Trichosternum likianga* Draudt, 1950: 80; pl. 5, fig. 20, by monotypy.

Hadena auct., nec Schrank, 1802 (part).

Trachea auct., nec Ochsenheimer, 1816 (part).

Apamea auct., nec Ochsenheimer, 1816 (part).

Adults. Antennae of males filiform, serrate, finely ciliated, in one case bipectinate. Palpae short, pressed, their third segment 2–2.5 times shorter than second, covered with elongate separated scales. Proboscis developed. Head and thorax covered with elongated and hair-like scale; patagia with tuft of scales. Segments of tarsus with three rows of spines. Ground color of forewings brown, pale brown, dark brown with dusting of green scales, often with salad, olive or grassy-green fields or filled with green scales between transversal lines.

Male genitalia. Uncus simple, in some species slightly swollen; juxta wide, plate- or anchor-like; aedeagus relatively short, vesica tube like, without cornuti or globular, armed with single or several cornuti. In some group of species cornuti very large, strong, spine-like or duck beak-like. Valva lobe-like, with some separated cucullus; costa strong; digitus developed; clasper plate-like, harpe reduced or

ampulla-like.

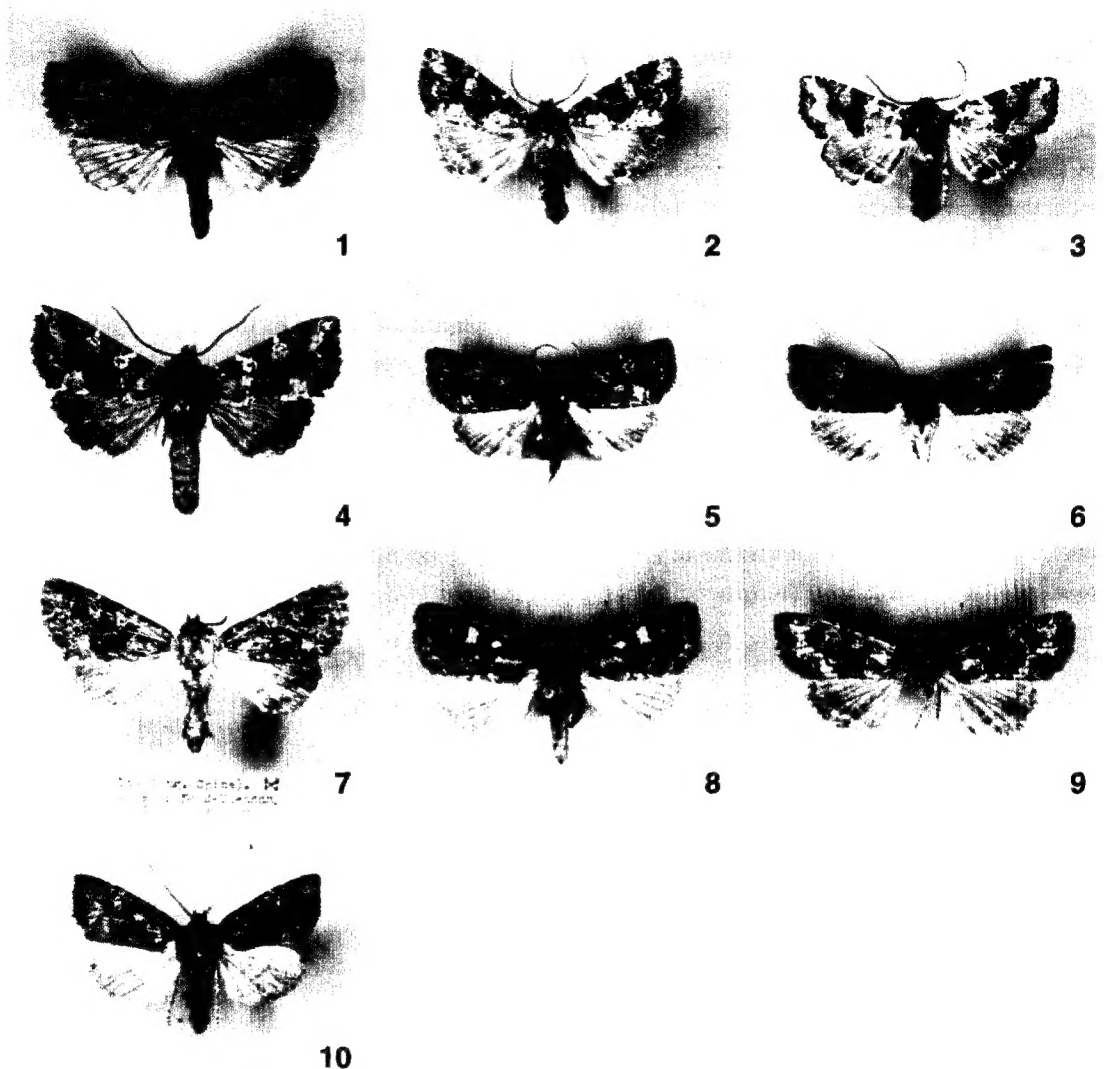
Female genitalia. Papillae annales strong, sclerotized; apophyses anteriores and posteriores strong, relatively short, anterior ones at 1.5 times shorter than apophyses posteriores; antrum funnel-like or cup-like, sclerotized; ductus bursae relatively short, often sclerotized; bursa membranous or weakly sclerotized in caudal part; corpus bursae membranous or ribbed, elongated, in some case with sclerotized acute extension, corresponding to the strong cornutus of male.

Notes. The male and female genitalia of the genus display a generalized shape of the generic group of *Apamea* complex. More specilaized genera of this group have separated cucullus with well expressed neck of cucullus and modified digitus. The shape of papillae annales in the female genitalia is characteristic for the *Apamea* complex and typical for species trophically connected with Poacea grasses, which lie eggs in splits between steam and leave of the foodplants.

The genus *Atrachea* composed with 13 species in the Palearctic region, most of them are distributed in limits of the Mandschurian and Sino-Tibetan regions. Probably some more species of *Atrachea* are still included to some unrevised genera with green elements of wing pattern (*i. e.* *Trachea*, *Valeriodes*, etc.). As *Trichosternum likianga* Draudt is considered to be congeneric with *Atrachea nitens* Butler (the type-species of *Atrachea*), the generic names *Trichosternum* and *Zutragum* are the junior subjective synonyms of *Atrachea*.

A list of the species of the genus *Atrachea* Warren, 1911

- A. nitens* (Butler, 1878)
 muscosa Butler, 1878
- A. jankowskii* (Oberthür, 1879)
- A. alpherakyi* Kononenko, 1986
 jankowskii Alpheraky, 1897, nec Oberthür, 1879
- A. prasinatra* (Draudt, 1950), **comb. n.**
- A. leucochlora* (Boursin, 1970), **comb. n.**
- A. munda* (Butler, 1900)
 muscosa Draudt, 1950, **syn. n.**
- A. draudti* **sp. n.**
- A. viridinigra* (Hreblay et Ronkay, 1997), **comb. n.**
- A. ochrotica* (Hampson, 1910)
 mediofascia Wileman et West, 1917
 likianga (Draudt, 1950), **syn. n.**
- A. miyakensis* Sugi, 1963
 ssp. *contaminata* Sugi, 1982
- A. chlorofasciata* **sp. n.**
- A. japonica* (Leech, 1889)
- ?*A. viridula* (Staudinger, 1895)



Figs 1-10. External appearance: 1. *A. nitens* (Butler), China; 2. *A. jankowskii* (Oberthür), Russia, Primorye terr.; 3. *A. alpherakyi* Kononenko, Russia, Primorye terr.; 4. *A. prasinatra* (Draudt), China; 5. *A. munda* (Leech), China, lectotype of *Valeria muscosula*; 6. *A. draudti* sp. n. female, China, holotype; 7. *A. draudti* sp. n. male, China, paratype; 8. *A. ochrotica* (Hampson), China; 9. *A. chlorofasciata* sp. n., male, China, holotype; 10. *A. japonica* (Leech, 1889), Russia, Primorye terr.

***Atrachea nitens* (Butler, 1878)**

(Figs 1, 11, 20)

Spaelotis nitens Butler, 1878, Ann. Mag. nat. Hist. (5) 1: 164 (TL: Japan: Yokohama [Type(s): BMNH, London]).

Naenia muscosa Butler, 1878, Ann. Mag. nat. Hist. (5) 1: 290 (TL: Japan: Yokohama [Type(s): BMNH,

London)).

Diagnosis (Fig. 1). Wing expanse 36–40 mm. Forewings greyish brown, wing pattern darker. Basal and subbasal fields suffused with yellowish–green scales; reniform and orbicular yellowish–brown, uncontrast; inner line as a row of semilunar streaks; subterminal and terminal fields monotonous brown, hardly separated.

Male genitalia. (Fig. 11). Uncus some swollen; juxta heart-shaped, small; aedeagus rather curved, carina with a short wide spine; vesica tube-like, covered with minute setae; valva narrower to apex; cucullus armed with corona of a row of spines; digitus rather curved on apex.

Female genitalia. (Fig. 20). Papillae anales flattened, acute, sclerotized; antrum wide, cup-shaped; ductus bursae sclerotized, short, about 4–5 times shorter than corpus bursae; corpus bursae membranous, sack-like.

Distribution. Russian Far East (S Kuriles: Kunashir Isl.), Japan, Korea, China.

Material examined. CHINA: 192 exs., [Prov. Hunan], “Hoengshan, Prov. Hunan”, 20–31 V 1933 (H. Höne); 1 female, [Prov. Zhejiang], West Tien-mu-shan, 4 VIII 1932; Mokanshan, V 1930; [Prov. Fujian] Kuatun (H. Höne), 14–21 V 1930; 1 female, N China, Inner Mongolia, Hontangu river, 13 VII 1885 (Potanin). JAPAN: 16 spec., “Asayamama, Japan”, VI 1914 (H. Höne). KOREA: large series in collections ASTI and CIS from: Daegwanryeong, Yecheon, Yeongdong, Muan, Yungcheon, Haman, Hongcheon, Mt. Chiak, Goesan, Mt. Baikwoon, Cheongwon, Gochang, Milyang, Wonju, Yangyang, Mt. Weolak, Seoguipo [ASTI]; Seomyun, Yangyang, Mt. Sanak, Bongmyongri, Gwangneung, Mt. Myongji, Hongcheon [CIS]; 7 males, 1 female, Korea (O. Herz). RUSSIAN FAR EAST: 8 males, Kurile Isls., Kunashir Isl., 8–10 VII 1974 (V. Kirpichnikova).

***Atrachea jankowskii* (Oberthür, 1879)**

(Figs 2, 12, 21)

Hadena jankowskii Oberthür, 1879, Diagnoses Espèces nouv. Lépid. Ile Askold.: 14 (TL: RFE: Primorye terr., Askold Isl. [Type(s): BMNH, London]).

Hadena jancousci: Hampson, 1908, Cat. Lepid. Phalaenae Br. Mus. 7: 161, emendation.

Diagnosis (Fig. 2). Wing expanse 38–40 mm. Close to *A. nitens*, differs by wing coloration without greenish tint and more expressed elements of the wing pattern. Orbicular and reniform distinct, with a thin and pale bordering line; outer line distinct, dentate, sometimes separated for semilunar streaks; area between inner and outer lines with pale–yellowish suffusion; subterminal and terminal fields well separated, subterminal field pale brown. Hind wings some paler at the base.

Male genitalia (Fig. 12). Differ from those of *A. nitens* by larger size. Juxta larger and wider; aedeagus without spine in apex; vesica curved dorsally, bearing setae; valva with neck of cucullus less expressed, digitus almost straight; harpe rudimentary, ampulla-like.

Female genitalia (Fig. 21). Differ from those of *A. nitens* by long weakly sclerotized ductus bursae, narrower antrum, and longer corpus bursae.

Distribution. RFE (South of Khabarovsk terr., Primorye terr., Amur reg.), Korea, China.

Material examined. KOREA: 3 male, "Utikondo im Kongosan, Mittel Korea" 25, 26, 30 VII 1940 (H. Höne); 1 male, "Choanyi" 2 VIII 1928 (H. Höne); CHINA: 1 male, [Prov. Fujian], "Kuatun 2,500 m, (Fukien)", 26 VIII 1938 (H. Höne); 3 males, Mandshuria, Yablonya, 7 VII, 19 VII, 23 VII 1937, 1939 (Tolmachev); RUSSIAN FAR EAST: 1 male, "Amur"; 1 male, [Ussuriisk] "Nikolsk Ussuriisky, Jankowskyi"; over 150 specimens from the Primorye, Khabarovsk terr. and Amur region (north to Tynda) with collecting data June 30 – August 15.

***Atrachea alpherakyi* Kononenko, 1986**

(Figs 3, 13, 22)

Atrachea alpherakyi Kononenko, 1986, *Sistematica i ecologia nasekomyh Dal'nego Vostoka*: 41, fig. 5, (replacement name for *Atrachea jankowskii* (Alpheraky), secondary homonym).

Calotaenia jankowskii Alphéraky, 1897, in Romanoff, *Mem. Lepid.* 7: 160, pl. 11, fig. 6 (TL: RFE: Bezverkhovo [Sidemi] [Holotype: ZI, St. Petersburg]).

Diagnosis (Fig. 3). Wing expanse 31–33 mm. Forewing with basal, subbasal and subterminal fields grassy-green; medial field brownish, with light suffusion of green scales; inner and outer lines thin, white; terminal field harrow, brown; reniform and orbicular green, bordered with whitish scales.

Male genitalia (Fig. 13). Tegumen with "shoulders"; uncus narrow. Valva with paralleled dorsal and ventral margins, with slightly separated cucullus, which covered with short soft hairs, armed with one-row corona; digitus finger-like, flattened; harpe rudimentary, ampulla-like. Aedeagus globular at base, bearing single very large spine-like cornutus.

Female genitalia (Fig. 22). Papillae annales flattened, acute, sclerotized, smaller than in preceding species, covered with short setae; antrum wide, funnel-like; ductus bursae short, sclerotized on 2/3 of length; corpus bursae rubbed, with sclerotized triangular extension, corresponding to strong cornutus of male.

Material examined. Holotype of *Jaspidea jankowskii* Alph., male with labels: "Sidemi, Jankowsky/1888/Orig." (Coll. ZI, St. Petersburg); 1 male, 1 female, Vladivostok, Russky Island, 19, 24 VIII 1912 (Kriger-Voinovskiy); 1 male, 1 female, Primorye terr., Ryazanovka, 1–3 IX 1980 (E. Belyaev); 2 males, 1 female "Kedrovaya Pad" Nature reservation, 12 IX 1974 (V. Kononenko); 2 specimens from Korea [NIAS].

Distribution. Russian Far East (Primorye terr.), Korea.

***Atrachea prasinatra* (Draudt, 1950), comb. n.**

(Figs 4, 14, 23)

Trachea prasinatra Draudt, 1950: 90, *Mitt. munch. ent. Ges.* 40: 90, pl. 6, fig. 12 (TL: China, [Prov. Zhejiang] Tai-peí-shan, Tien-mus-shan, Mien-shan [Type(s): ZFMK, not found]).

Diagnosis (Fig. 4). Wing expanse 34–37 mm. The species is related to *A. alpherakyi* and *A. leucoptera* in the same lineage. Externally it differs from *A. alpherakyi* by the presence of white scales in patagias, white bordering of basal, subbasal and partly outer lines, orbicular and white bordering of

reniform. The wing pattern is very similar to *A. leucochlora* but differs by the smaller orbicular and reniform; shape of subterminal and terminal fields and darker hindwing. Ground color of forewing dark greyish brown; basal and subbasal fields ochre green; basal and subbasal lines thin, white, bordered with dark brown; orbicular white with ochre green nuclear, connected with costal margin by white mark; reniform ochre green, connected with costal margin by white mark; outer line distinct, thin, white with green, bordered with dark diffused semilunar spots; terminal field dark brown with more darker diffused marks; cilia brown with yellowish borderline and white margin. Hind wing dark grey brownish, a bit lighter in outer part, with traceable pale medial band and a pale yellowish mark in anal angle; cilia pale yellowish grey with brown.

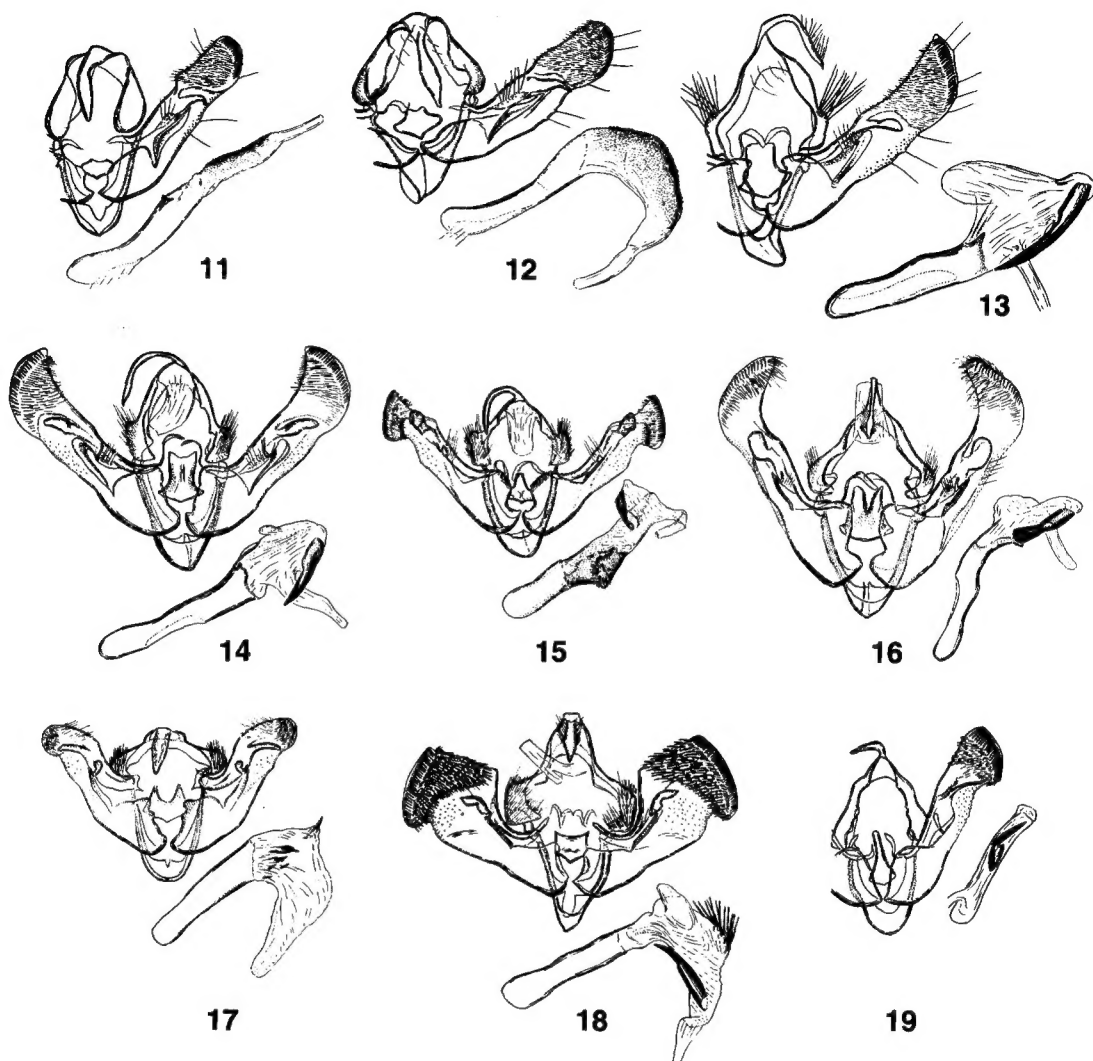
Male genitalia (Fig. 14). Uncus normal, curved; tegumen rather broad, with moderate shoulders and lobes of peniculus; juxta large, plate-like, extended basally, with shallow cleft on apical margin; vinculum V-like; valva relatively large, rather moderate wide, long, with parallel margins; neck of cucullus not well expressed, cucullus moderate, extended and tapering apically, covered by thin hairs, marginal corona represented with a row of spines; costa strong with large, elongated, flat digitus, directed ventro-distally; clasper wide, plate-like; harpe small, rudimental; margin of valva between sacculus and base of cucullus weakly sclerotized; sacculus short, but massive, its basal lobe rounded-triangular. Aedeagus large, about two-thirds of valva, strait, some extended apically, carina sclerotized and some scobinated, as a thin stripe; vesica short, globular, membranous, with small secondary diverticula in middle, and large diverticula, bearing, moderate long spine-like cornutus.

Female genitalia (Fig. 23). Ovipositor short, papillae annales strongly sclerotized, flattened dorso-ventrally, tapered and pointed apically, on wide base, covered with small strong setae, intersegmental sclerite as two narrow sclerotized elongated plates; apophyses anteriores and posterior ones relatively short, strong, the former thinner and 1.5 times longer than apophyses posteriores; antrum short, strongly sclerotized, funnel-like, with convex distal margin, which shallowly cleft in centre; ductus bursae ventrally membranous, dorsally sclerotized, its dorsal wall expanded to mid of corpus bursae; corpus bursae membranous, roundly elongated.

Material examined. CHINA: 1 male, 1 female with labels "China oder Japan/ ex coll Weber 13/57 /*Trachea prasinarta* Draudt, det. Wolfgang Heinicke"; 2 males, 1 female, [Prov. Jiangsu] "Kuling July 1921".

Distribution. The species is known from Central and East China.

Note. Draudt (1950) described *Trachea prasinatra* from a series of several specimens. In the original description he reported "Wenige Stucke von [several specimens from ...] Tai-pei-shan, 31 VIII-1 IX 35; Ost-tien-mu-shan, 3-8 IX 31; Mien-shan, 1 m vom 6 VIII 37". As for other species described by Draudt in 1950 the type specimen of *prasinatra* was not stated as type in the original description. Therefore specimens indicated in the collection after publication (Draudt, 1950) as "Type", "Allotype" or "Paratype" in fact are series of syntypes. I could not find in the collection of ZFMK any specimens of *prasinatra* corresponding to collecting data reported by Draudt nor genitalia slide for type specimen. However, Boursin (1970) in his description of *Trachea leucochlora* (see below) illustrated male genitalia of "holotype" of *prasinatra*. Probably type specimen(s) was loaned from the collection of ZFMK by Boursin and still remains in his collection which is deposited now in Karlsruhe Zoological Museum.



Figs 11-19. Male genitalia: 11. *A. nitens* (Butler), Russia, Kuril Isl., Kunashir Isl.; 12. *A. jankowskii* (Oberthur), Russia, Primorye terr.; 13. *A. alpherakyi* Kononenko, Russia, Primorye terr.; 14. *A. prasinatra* (Draudt), China, Genit. Prep. ZFMK-1702; 15. *A. munda* (Leech), China, Genit. Prep. ZFMK-1704; 16. *A. draudti* sp. n., paratype, China, Genit. Prep. ZFMK-1708; 17. *A. ochrotica* (Hampson), China, Genit. Prep. ZFMK-1706; 18. *A. chlorofasciata* sp. n., holotype, China, Genit. Prep. ZFMK-1621; 19. *A. japonica* (Leech, 1889), Russia, Primorye terr.

Examined material correspond well to the illustration of the moth in the original description and subsequent illustration of the male genitalia of "holotype" of *prasinatra* given by Boursin (1970). The illustration of "*Trachea prasinatra*" given by Chen (1982) is a misidentification of different species, which is in description at present (Kononenko, in litt.).

***Atrachea leucochlora* (Boursin, 1970), comb. n.**

Trachea leucochlora Boursin, 1970, Entomops, 18: 58, figs 80, 81 (TL: Central China [Holotype: Coll. Ch. Boursin, ZM, Karlsruhe]).

Diagnosis. Judging from the original description, the species belong to the same group with *A. alpherakyi* and *A. prasinatra*. It is close to *A. prasinatra*, but differs by rather bigger size (wing expanse 38 mm), darker coloration of forewing, bigger and more contrasting whitish orbicular and reniform, less separated subterminal and terminal fields. Hindwing more paler in outer part. In the male genitalia, it differs from *A. prasinatra* by more massive and wider valva, well separated cucullus, elongate shape of juxta, sclerotized and tipped apical part of aedeagus, and shorter and more massive large spine-like cornutus.

Material examined. The diagnosis given above is completed on the basis of the original description.

Distribution. The species is known the only from type locality, Central China (easternmost part of Prov. Sechwan).

***Atrachea munda* (Leech, 1900)**

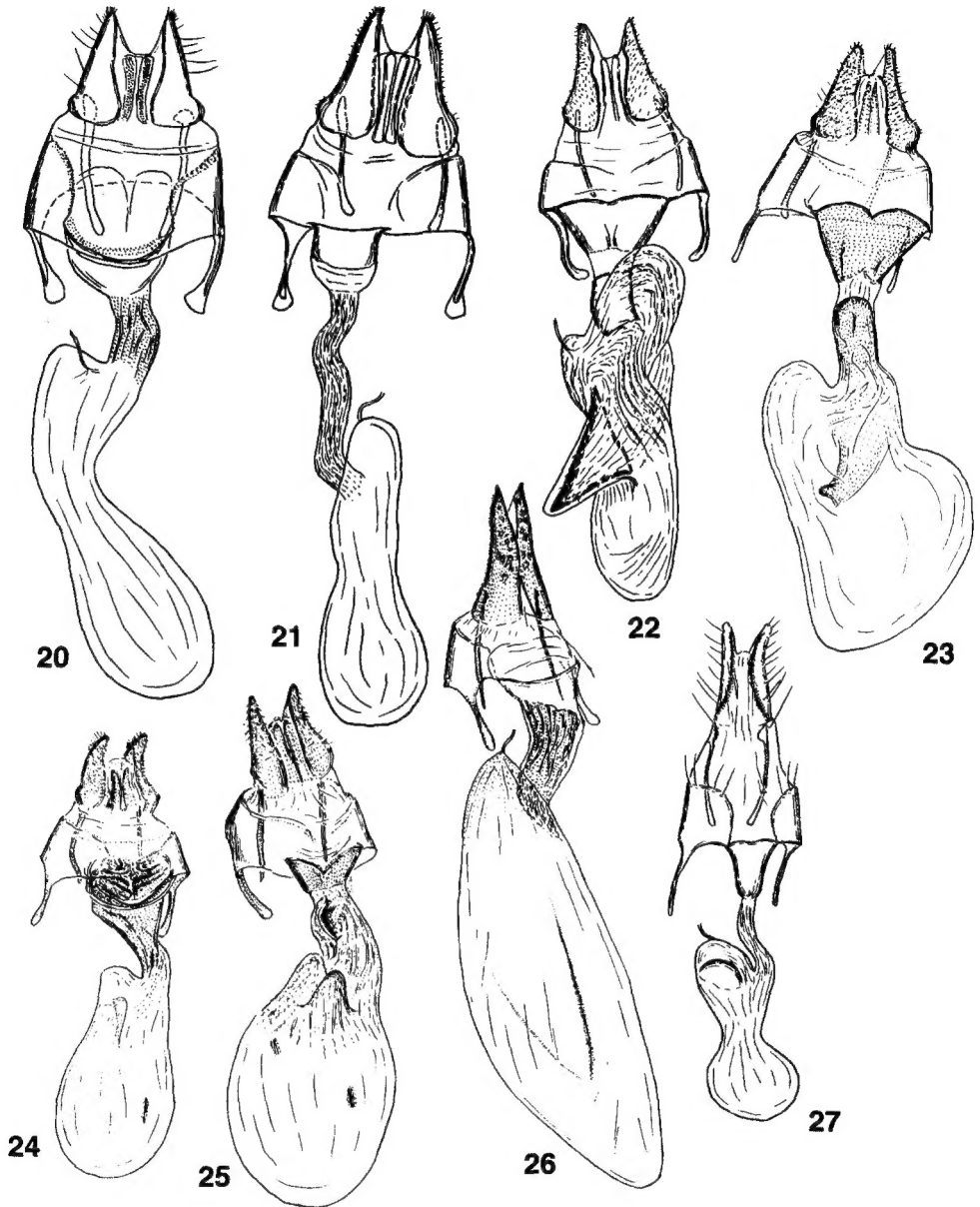
(Figs 5, 15, 24)

Eurois munda Leech, 1900, Trans. ent. Soc. London, 1900: 92 (TL: NW China, north from Ta-tsien-lu [Holotype: BMNH, London]).

Valeria muscosula Draudt, 1950, Mitt. munch. ent. Ges. 40: 69, Pl. 5, fig. 5 (TL: China, Yunnan Prov. [N Yunnan], A-tun-tse, Li-kiang [Lectotype: ZHMK, Bonn]), **syn. n.**

Diagnosis (Fig. 5). Wing expanse 31–32 mm. The species differs from its allied by intensive expressed ochre green elements of wing pattern, which is separated on spots and marks. The male genitalia differs from related species by expressed neck of cucullus, wide lobe of sacculus, distal position of digitus and strongly sclerotized carina in aedeagus. Antennae of male biserrate, fasciculated. Ground color of forewing dark brown, light elements of wing pattern ochre green. Basis of lines in costal margin marked by white spots; costal area with green patches separated by dark brown. Basal and subbasal fields ochre green with dark basal and subbasal lines diffused and separated for spots; orbicular and reniform ochre green; central part of medial field with rectangular ochre green mark; subterminal and terminal fields with green patches, separated by diffused dark marks. Hindwing dark brownish grey, some lighter in basal part.

Male genitalia (Fig. 15). Uncus relatively short, normal; tegumen short, wide, with broad shoulders and peniculus; juxta small, triangular plate-like; vinculum U-like; valva relatively long, some constricted in middle, with well expressed neck of cucullus; costa strong with strong short but wide rounded wrinkled digitus, directed distally; clasper plate-like; harpe very small, rudimental; cucullus relatively small, well defined, with distinct neck, covered with thin hairs, corona well expressed as a marginal row of spines; ventral margin of valva between sacculus and neck of cucullus weakly sclerotized; sacculus with finely scobinated inner margin; aedeagus relatively small, about half of valva in length, wide, strongly sclerotized, knee-like extended, with strong scobination; vesica tubulare, straight, in apical part with



Figs 20-27. Female genitalia: 20. *A. nitens* (Butler), Russia, Kuril Isls., Kunashir Isl.; 21. *A. jankowskii* (Oberthur), Russia, Primorye terr.; 22. *A. alpherakyi* Kononenko, Russia, Primorye terr.; 23. *A. prasinatra* (Draudt), China, Genit. Prep. ZFMK-1703; 24. *A. munda* (Leech), China, Genit. Prep. ZFMK-1705; 25. *A. draudti* sp. n., holotype, China, Genit. Prep. ZFMK-1709; 26. *A. ochrotica* (Hampson), China, Genit. Prep. ZFMK-1707; 27. *A. japonica* (Leech, 1889), Russia, Primorye terr.

moderate diverticula, bearing large, flattened duck beak-like cornutus directed basally; vesica some sclerotized in basal part.

Female genitalia (Fig. 24). Ovipositor short, papillae annales strongly sclerotized, flattened dorso-ventrally, tapered and pointed apically, some curved ventrally, covered with small strong setae; apophyses anteriores and posteriores strong, the former thinner and some longer than apophyses posteriores; postvaginal area sclerotized, wrinkled, finely scobinated; ostium split-like, antrum short, sclerotized; ductus bursae short, not defined well from antrum; corpus bursae elongated, with sclerotized diverticula in caudal part and short elongated signa in bottom part.

Material examined. Lectotype of *Valeria muscosula* (designated here): male with labels: "A-tun-tse, (Nord Yuennan) Obere Hohe 4,500 m, 19 VIII 1936 H. Höne/holotype *Valeria muscosula* Draudt male/ *Valeria muscosula* Draudt male/Preparation No H5565 Ch. Boursin; paralectotype: 1 female, Likiang (China) Prov. Yuennan 6 VIII 1934/ Allotype *Valeria muscosula* Draudt female. Other material: 6 males, 5 females, [Prov. Yunnan], A-tun-tse, (N Yuennan) Aus Hohe ca. 3500 male 14.08, 23 VIII, 21 VIII, 23 VIII, 24 VIII, 26 VIII, 27 VIII 1937 H. Höne; 36 female, 7 males; [Prov. Yunnan] "Li-kiang, China ca. 3,000–4,000 m, 23 VIII–3 X 1934, 1935"; 1 male, [Prov. Sichuan] "Szetschwan, Tatsienlu, exp. Stozner/*Grypsedra munda* Leech/Ex coll. Kotsch. Preparation No 564 Ch. Boursin.

Distribution. Central and East China (Prov. Yunnan and Sichuan).

Note. Draudt (1950) reported the material on *Valeria muscosula* as follow: "Wenige mm von A-tun-tse, aus 4,500 m Hohe, vom 17–20 VIII 36; weitere Stucke auch ff, von Li-kiang, 11 VIII –5 IX 35 sind durchschnittlich etwas grober und lebhafter grun". For the selection of the lectotype and paralectotype I chose specimens indicated by Draudt as "Holotype" and "Allotype". The other examined material is authenical with types of *Valeria muscosula*.

***Atrachea draudti* sp. n.**

(Figs 6, 7, 16, 25)

Diagnosis. The new species is close to *A. munda*. It differs by darker coloration of forewing, less expressed ochre green elements of wing pattern, dark brown patagia and tegulae, more paler inner part of the forewing. The male genitalia differ well from related species by the bigger size of all structures. The female genitalia also differ from *A. munda* by the shape of the antrum, which is funnel-like, shape of ductus and shape of corpus bursae, which is sclerotized in caudal part, bearing two extensions.

Description (Figs. 6, 7). Wing expanse 31–33 mm. Antennae of male bisserate, ciliated. Head and thorax covered with elongated hair like scales, dark, greyish, without intrusion of green scales. Ground color of forewing dark greyish brown, wing pattern some diffused. Costal area with patches of ochre green scales; basal field dark, diffused. Subbasal field ochre green with intrusion of dark erected scales in dark elements of pattern; claviform sometimes expressed by dark bordering line; orbicular and reniform ochre green, with setae like scales, surrounded with dark brown; medial field dark brown, with erected scales and with patches of setae-like scales between Cu trunk and vein A; outer line indistinct, formed by two rows of diffused dark spots; subterminal line dark, diffused, bordered with ochre green diffused marks; subterminal field with characteristic ochre green mark near anal angle; terminal field dark brown with marks of ochre green scales between veins; terminal line dark, broken on row of dark spots between veins; outer margin waved; cilia grey brown with pale bordering line. Hindwing pale greyish in inner part,

dark greyish in outer part; cilia pale greyish.

Male genitalia (Fig. 16). Uncus relatively short, narrow, arrowhead-like at tip; tegumen normal, with moderate shoulders and peniculus; juxta rather large, plate-like, some extended basally, with deep triangular cut with scobinated margins apically; vinculum v-like; valva relatively large, rather narrow, long, with almost parallel margins, extended and slightly curved dorsally; neck of cucullus not expressed, cucullus extended and tapering apically, covered with thin hairs, marginal corona developed as a row of spines; costa with large, rounded, flat digitus, directed distally; clasper plate-like, harpe small, ampulla-like, rudimental; moderate margin of valva between sacculus and base of cucullus weakly sclerotized; sacculus relatively short, its basal lobe rounded-triangular, with some scobination on inner margin. Aedeagus relatively small, about half of valva, thin; carina sclerotized and some bended in ventral side, as thin stripe in dorsal side; vesica short, globular, membranous, with diverticula in middle, bearing large duck-beak-like cornutus on extended base directed basally.

Female genitalia (Fig. 25). Ovipositor short, papillae annales strongly sclerotized, flattened dorso-ventrally, tapered and pointed apically, covered with small strong setae, intersegmental sclerite as two sclerotized elongated plates; apophyses anteriores and posteriores relatively short, strong, the former thinner and two times longer than apophyses posteriores; postvaginal area not sclerotized and wrinkled as in *A. munda*; ostium split-like; antrum short, sclerotized, funnel-like, with shallow triangular cut in centre, with short setae on margin; ductus bursae slightly sclerotized, wrinkled, separated from antrum by narrow membrane, with sclerotized extension in apical part; corpus bursae elongated, sclerotized and wrinkled, with two short diverticula in caudal part corpus bursae membranous, with two small round signa in mid and upper parts.

Material examined. Holotype: CHINA: female, [Prov. Yunnan] "Li-kiang, ca 3,000 m, Prov. Nord Yunnan", 1 X. 1934 (H. Höne). Paratypes: 1 male, 1 female, same locality, 17 X, 29 IX 1934 (H. Höne); 1 female, same locality, 10 X. 1934 (H. Höne), 1 male, "West China/ex coll Oberthür".

Distribution. South West China (North of Prov. Yunnan).

***Atrachea viridinigra* (Hreblay et Ronkay, 1997), comb. n.**

Polymixis viridinigra Hreblay et Ronkay, 1997, Acta zool. Acad. Sci. Hung. 43(1): 46, figs 156, 157, (TL: Taiwan, Prov. Nantou, 7 km SW Tayuling, 3,000 m [Holotype: coll. Hreblay, Hungary, Erd]).

Material examined. Type-series of *Polymixis viridinigra*, including the holotype.

Distribution. The species is known from the type locality, Taiwan, Prov. Nantou.

Note. Although the species has been described in the genus *Polymixis*, judging from the structure of the male and female genitalia, it belongs to the genus *Atrachea*, particularly to *A. munda* lineage. The coloration and pattern of forewings with olive-grey suffusion and greenish elements are corresponding to those of some other species of *Atrachea* (i. e. *A. munda* and *A. draudti*). The male genitalia have typical shape of valva for the group, with small rounded cucullus and weak corona; digitus short, narrow, slightly arcuate with finely rounded apex; harpe reduced, small, ampulla-like. Aedeagus relatively short, with vesica semiglobular, armed with strong, large, duck's beak-like subbasal cornutus similar to those of *A. munda* and *A. draudti*. The female genitalia are typical for members of *A. munda* lineage, with

sclerotized acute papillae anales, funnel-like antrum, sclerotized ductus bursae, and doubled peaked cervix bursae.

***Atrachea ochrotica* (Hampson, 1910)**

(Figs 8, 17, 26)

Trachea ochrotica Hampson, 1910, Cat. Lepid. Phalaenae Br. Mus. 10: 500, Pl. 148, fig. 9 (TL: Taiwan, Kagi [Types: BMNH, London]).

Trachea mediifascia Wileman et South, 1917, Entomol. 50: 25 (TL: Taiwan, Arizan [Holotype: BMNH, London]).

Trichosternum likianga Draudt, 1950, Mitt. munch. ent. Ges. 40: 80; pl. 5, fig. 20 (TL: SW China, [N Yunnan] Li-kiang [Lectotype: ZFMK, Bonn]), **syn. n.**

Diagnosis (Fig. 8). Wing expanse 35–36 mm. In the external appearance, this species differs from its relatives by some wider and more rounded shape of the forewings, which have some convex costal margin and pale greenish color of orbicular and reniform. Antennae of males fasciculated, ciliated. Head and thorax greyish brown. Ground color of forewing variable from pale greyish brown to dark brown; orbicular and reniform relatively large, pale ochre greenish, contrasting with dark background; outer line indistinct or traceable as thin diffused green line; subterminal line indistinct or expressed as row of dark diffused marks; outer margin waved; cilia greenish brown. Hindwing pale grey brownish; cilia pale; wing coloration and pattern variable; sometimes dark or greenish elements of pattern more developed. In the male genitalia, the species differs from its allied by relatively wide uncus, configuration of valva, small cucullus; unlikely vesica armed with six small spine-like cornuti. In the female genitalia, papillae annales sharper and thinner; corpus bursae with two stripe-like signa.

Male genitalia (Fig. 17). Uncus relatively short, rather wide, flat, tapered apically; tegumen short, with broad shoulders and expressed peniculus; juxta plate-like with rounded cut at middle; vinculum v-like; valva relatively short; costa curved, with moderate costal extension (digitus), which does not exceed ventral margin of valva; clasper elongate, plate-like; harpe small, ampulla-like, extended and rounded apically; cucullus some curved ventrally, bearing a small numerous setae, corona not expressed; sacculus with small clavi. Aedeagus some shorter than valva; carina not expressed; vesica membranous, rather wide, curved, bearing 6–7 small spine cornuti basally.

Female genitalia (Fig. 26). Ovipositor short; papillae annales strongly sclerotized, flattened dorso-ventrally, tapered and pointed apically; apophyses anteriores and posteriores strong, the former rather thin, about two times longer than apophyses posteriores; antrum sclerotized, shallow; ductus bursae relatively short, wide, sclerotized, wrinkled; corpus bursae large, long, membranous, with some sclerotized caudal part and two narrow ribbon-like signa.

Material examined. CHINA: Lectotype of *Trichosternum likianga* Draudt (designated here): male, "Likiang, Prov. Nord Yuennan, 1 IX 1935 H. Höne"; paralectotype: male, same locality, 2 IX 1935; 20 females, 64 males, [Prov. Yunnan], "Likiang, Prov. Nord Yuennan, ca. 3,000, 4,000 m", 7 VIII–24 IX 1935 (H. Höne)", collecting data—mainly end of August—beginning of September.

Note. Draudt (1950) described *Trichosternum likianga* from a series of several specimens "Wenige

Stucke von Li-kiang, meist stark geflogen. 27 VIII–27 IX 35". However I could not find in the collection of ZFMK the specimens indicated as "Holotype". The extensive examined material fits well with original description and illustration of Draudt (1950). The collecting data is also correspond to the original description, therefore I consider examined specimens from the collection ZFMK as authentic, but the only two males from the series of *Trichosternum likianga* are designated as lectotype and paralectotype. Even though Draudt in the original description mentioned several specimens, but not so extensive series. The synonymy of *ochrotica* and *likianga* is established by comparing material and original description of *likianga* with Taiwanese specimens as well as with illustration of the type of *ochrotica* (Wang and Chang, 1991; Krusek and Behounek, 1996).

Distribution. Taiwan and Central China (North East of Prov. Yunnan).

***Atrachea miyakensis* Sugi, 1963**

Atrachea miyakensis Sugi, 1963, Tinea, 6: 22, 26, fig. 1, 2 (TL: Japan, Miyake, Tsubota [Holotype: coll. Sugi, Tokyo]).

Atrachea miyakensis contaminata Sugi, 1982, Moths of Japan, 1: 746 (Holotype: Japan, Kyushu, Fukoka Pref. [Holotype: coll. Sugi, Tokyo]).

Distribution. Japan (Izu Isls.) – nominative subspecies; Kyushu, Shikoku – *A. miyakensis contaminata*.

Note. Judging from the original description and illustrations of the species given by Sugi (1963, 1982), the species undoubtedly belongs to the genus *Atrachea* and probably most close to *A. ochrotica*.

In the male genitalia, cucullus small, rounded, without corona; aedeagus armed with relatively large cornutus and a group of small cornuti.

***Atrachea chlorofasciata* sp. n.**

(Figs 9, 17)

Diagnosis. The species has some isolated position in the genus. By external appearance it has some relative similarity with *A. prasinatra* and with *A. alpherakyi*, but well differs by absence of white lines and spots in wing pattern and more fuscous ground color of forewing.

Description (Fig. 9). Wing expanse 38 mm. Antennae of male fasciculate, ciliated. Head and thorax covered with pale ochre green hair-like scales. Ground color of forewing greyish brown with ochre green fields and suffusion. Costal area between veins C and Cu, subbasal and subterminal fields ochre green; the basis of main lines and their bordering are expressed in costal margin as dark and greenish spots; basal field greyish brown, basal line as bordering line of black scales; subbasal field ochre green, separated by dark suffusion of vein A; subbasal line thin, dark brown; medial field greyish brown; claviform expressed as ellipsoid spot, formed by bordering line; orbicular rounded, ochre green, bordered with black; reniform pale brown greenish, paler than background, some diffused, bordered outward with black line; cell between orbicular and reniform dark; subterminal line thin, dark; subterminal field ochre green, well separated from medial and terminal fields; terminal field grey brownish; terminal line thin; terminal margin waved; cilia ochre green with brown. Hind wings greenish brown; cilia pale grey.

Male genitalia (Fig. 17). Uncus relatively short, and relatively wide, flattened, pointed at top, tegumen rather narrow apically, broad in basal part, with well expressed shoulders and peniculus; juxta plate-like, pointed at base; vinculum v-like; valva large, wide at base, with dorsal margin curved and constricted in mid part, extended distally; costa strong, curved from base ventro-dorsally, extended distally, angled under straight angle before cucullus, bearing massive, short, finger-like extension (digitus); clasper thin, plate-like; harpe rudimental, very small, ampulla-like; cucullus large, well defined, with expressed neck, its dorsal margin strait, inner margin some convex, ventral angle rounded; plate of valva ventrally cucullus weakly sclerotized; surface of cucullus covered with numerous strong setae, marginal corona expressed as regular row of spines; sacculus relatively small, with triangular lobe. Aedeagus large, about two-thirds of valva; carina short, thin, sclerotized; vesica moderate in length, membranous, globular-elongated with small basal diverticula, bearing large beak-like cornutus with large elongate base and a group of 12 smaller pin-like cornuti.

Female unknown.

Material examined. Holotype: CHINA: male, [Prov. Zhejiang] "Ost Tien-mu-shan, Prov. Chekiang", 10 VII 1931 (H. Höne).

Distribution. Central China (Prov. Zhejiang). The species is known only from the type locality.

***Atrachea japonica* (Leech, 1889)**

(Figs 10, 18, 26)

Euplexia japonica Leech, 1889, Proc. zool. Soc. Lond. 1889: 504, pl. 51, fig. 4 (TL: Japan [Type (s): BMNH, London]).

Hadena succincta Graeser, 1890, Berl. ent. Z. 33: 255 (TL: RFE, Vladivostok, Khabarovsk, Nikolaevsk, "Ussuri" [Type (s): ZI, St.-Petersburg]).

Diagnosis (Fig. 10). Wing expanse 26–28 mm. This species differs from its allies by antennae of males bipectinated; third segment of palpi longer and thinner. Wing coloration brown with some violet tint; area between inner and outer lines around claviform with dark suffusion; reniform and orbicular paler than background; reniform with three small pale-yellowish points from outer side.

Male genitalia (Fig. 18). Uncus short, some swollen; juxta elongate, anchor-like; aedeagus thin, vesica with large spine-like cornutus; valva with some separated cucullus, some rounded at apex; cucullus armed with one-row corona; digitus thin, sharpened; harpe ampulla-like.

Female genitalia (Fig. 26). Papillae annales acute, less sclerotized; antrum narrow, cup-like; ductus and corpus bursae membranous, with small appendix bursae and sclerotized area in caudal part.

Distribution. RFE (Khabarovsk terr., Primorye terr.), Japan (Honshu).

Material examined. Syntypes of *Hadena succincta* Graeser [ZM, St.-Petersburg]; 6 males, 2 female, "Kedrovaya Pad" Nature reservation, 28 VIII–11 IX 1976 (V. Kononenko); 1 male, 1 female, Gornotaezhnoe, 15, 16 IX 1980 (E. Beljaev); 1 male. Partizansk, 3 IX 1970; 1 male, Kievka, 12 IX 1980 (V. Vasjurin); 2 females, Ternei, 25 VIII 1964 (Volkova); 2 males, Khabarovsk terr., Komsomol' sk-na-Amure, 3 IX 1976 (V. Mutin).

***Atrachea viridula* (Staudinger, 1895)**

Hadena viridula Staudinger, 1895. Dt. Ent. Z., Iris, 8: 324, pl. 6, fig. 10 (TL: [China] Tibet, between Lob Nor and Kuku Nor, [Holotype: MNHU, Berlin]).

Distribution. West China (Tibet).

Note. Transferred to *Atrachea* by Hreblay and Ronkay (1998). Judging from the illustration of imago and the genitalia of the lectotype and paralectotype given by Hreblay *et al.* (1998), the species is isolated and uncertain position in the genus *Atrachea*. It differs from other members by the large diamond uncus; cucullus elongated, with narrow neck, small, short digitus directed ventrally, short relatively large bulbous harpe. Aedeagus with tubular vesica, armed with two patches of medium size cornuti.

Notes on taxa excluded from the genus *Atrachea****"Atrachea" parvispina* (Tschetverikov, 1904)**

Ammoconia parvispina Tschetverikov, 1904, Rev. russe d'Ent. 4: 78 (TL: [Russia, Buryatia, Kemtchik river], "in terra Sojotorum, ad flumen Kemtschuik" [Type (s): ZI, St. Petersburg]).

Distribution. South Siberia (Tuva, Buryatia, Transbaikalia), Mongolia.

Note. Transferred to *Atrachea* by Varga (1982). Unlike other species of the genus *Atrachea* the species has brown-greyish coloration of forewing, without green fields or patches of green or greenish scales. Judging from the illustration of the male genitalia given by Remm and Viidalepp (1979) and (Varga (1982) the species has uncertain and doubtful position in the genus *Atrachea*. Unlike other species of *Atrachea*, it has well developed large flattened harpe, directed apically and not separated cucullus with complete one-row corona, costal extension (digitus) is not present. I consider that *A. parvispina* is not congeneric with *A. nitens*, the type species of *Atrachea*. The generic position of this species is unclear.

***"Atrachea" taiwana* (Chang, 1991)**

Antivaleria taiwana Chang, 1991, Ill. Moths Taiwan, 5: 182, fig. 125 (TL: Taiwan [Holotype: NHM, Taiwan]).

Distribution. Taiwan.

Note. The species was provisionally transferred to *Atrachea* by Hreblay and Ronkay (1997), however the male genitalia is different from those of other members of *Atrachea*. L. Ronkay (pers. comm.) supposed that correct placement of the species is in the genus *Potnyctycia* Hreblay et Ronkay, 1998.

***"Atrachea" argyllacea* (Draudt 1950)**

Lophotyna argyllacea (Draudt 1950), Mitt. M. nch. ent. Ges. 40: 121, pl. 8, fig. 6 (TL: China, Hoeng-Shan [Holotype: ZFMK, Bonn]).

Distribution. Central China (Prov. Shansi).

Note. The species was transferred to the genus *Atrachea* by Poole (1989), however the wing pattern as well as male genitalia are different from those of other members of *Atrachea*. L. Ronkay (pers. comm.) supposed that correct placement of the species is in the genus *Potnyctycia* Hreblay et Ronkay, 1998.

"*Atrachea*" *atrovirens* Moore, 1867

Hadena atrovirens Moore, 1867, Proc. Zool. Soc. Lond. 1867: 58 (TL: India, Sikkim, Darjiling [Type(s): BMNH, London]).

Distribution. North India, Nepal, Vietnam, China (South Tibet).

Note. The species was referred in the genus *Atrachea* by Hreblay, *et al.* (1998) without comments. By the external appearance, namely by the presence of green elements of the forewing pattern, this and other related species are similar to *Atrachea* species. However the male and female genitalia of this and related species show dissimilarity with those of other members of *Atrachea*. Kononenko (in litt.) separated these species to distinct genus, which is under description at present. Male genitalia of "*Atrachea*" *atrovirens* were illustrated by Hacker and Weigert (1993) as "*Gortyna* sp."

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